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On being placed in water at 52° the ova immediately commenced hatching, and in a week the fry were all out. In seven weeks the yolk sac was absorbed, and they commenced feeding off small particles of curdled milk fed to them daily for a week longer. They were then transported in large tin vessels to the Buskill, which runs through the outskirts of Easton, where a third of them were liberated at the mouth of a cold spring branch, and the remaining two-thirds placed in a small natural pond fed by a copious spring in a meadow above and discharging by a narrow outlet into the creek. Either here or at the mouth of the spring branch mentioned the fry will get such natural food as their instinct will lead them to seek, and thrive far better than if kept in artificial ponds and fed on prepared food.

The law of the salmon, as with the shad and other anadromous fishes, is that it will inevitably seek its native stream in its return from sea impelled by the instinct of reproduction, and although the Delaware is south of the limit of the geographical range of the salmon, it is on the law of nature that reliance is placed for its return to this river. It has been ascertained beyond doubt that one-half of a brood of salmon go to sea when a little over a year old, and the remaining half the following summer. The males of salmon as with shad are fecund a year earlier than the females, and it is not improbable therefore that those that migrate when a year old are males, and those that go to sea the next year are females. Mr. Norris thought the Delaware, on account of its being unobstructed by impassable dams and having a bold current, was a favorable river for trying to acclimatize salmon south of their present habitat. He is sanguine of success, and, even if the solution of this problem should not be favorable, he considers it important that the question should be definitely settled.

Mr. Norris also made some remarks on the effect of food on the external appearance of trout (*S. fontinalis*), as well as on the quality of their flesh—that, when fed in crowded artificial ponds on prepared food, the vermilion spots disappear, and the flesh deteriorates, but that the spots are restored, as well as the flavor of the fish, when placed in large ponds where they can find natural food. He also spoke of the malformation of young trout and salmon on being hatched, the body being curved around the yolk-sac, causing their death in a few weeks.

JULY 9.

The President, Dr. RUSCHENBERGER, in the chair.

Thirteen members present.

On Artemia from Salt Lake, Utah.—Prof. LEIDY directed attention to a bottle containing numerous specimens of a minute crus-

tacean from Salt Lake, Utah, caught on the 22d of June by Mr. C. Carrington, a member of Prof. Hayden's exploring party now in the field. They were received from Prof. Hayden with the remark "that Salt Lake has been supposed, like the Dead Sea, to be devoid of life, but its saltiest water contains the most of these little creatures."

The crustacean is the *Artemia salina* which has long been known in Europe, and has been previously found in other localities of this country. The animal has always been viewed with especial interest, in its order, from the fact that it lives and thrives best in a concentrated solution of salt, which would destroy most marine animals. It has not, I believe, been noticed in the ocean, but is found in salt lakes, and salt vats, in which by evaporation the brine has become more concentrated than sea water.

Artemia is furnished with eleven pairs of limbs, which serve both for progression and respiration. The limbs are four jointed, and the joints have leaf-like expansions fringed with long feather-like bristles. The narrow abdomen or tail-like prolongation of the body is six-jointed, and traversed by the intestine. The last joint ends in a pair of processes furnished each with a bunch of bristles like those of the limbs. The head exhibits a median, quadrate, black eye-spot, and in addition is provided with a pair of pedunculate, globular compound eyes. A short narrow pair of inarticulate antennæ project in advance of the eyes.

The head of the male is furnished with a pair of singular organs for seizing the female. These claspers are large double-jointed hooks. In the female they are replaced by a pair of comparatively small horn-like processes. The first abdominal segment bears the ovarian sac in the female; and two cylindroid appendages in the male.

The female of the Salt Lake *Artemia* ranges from 4 to 7 lines in length; the male from 3 to 4 lines in length. The color is translucent-white and ochreous-yellow, with three black eye-spots, and a longitudinal line varying in hue with the contents of the intestine. The ovarian sac appears orange-colored from the eggs within.

The antennæ end in three or four minute setæ, and are considerably longer in the male than the female. The first joint of the claspers is provided on its inner side just below the middle with a spheroidal knob. The last joint forms a rectangular hook, the angle having an elbow-like prominence. When the clasper is thrown forward, the outer border of the hook is convex; the anterior border straight, slightly, or deeply concave, and the inner or posterior border is sigmoid. The antennæ are longer than in the female, and longer than the first joint of the claspers; and in the female are longer than their homologues. The ovarian sac is inverted flask-shaped, and has a pair of lateral conical or mammillary, finely tuberculated processes. The caudal setæ are longer than in the male, and are eight to each process.

This description is taken from alcoholic specimens. They exhibit considerable variation in size, and to some extent in detail.

Prof. Verrill has described what he views as two species of *Artemia* distinct from the well-known *A. salina*. One he names *A. gracilis* from near New Haven, Conn.; the other *A. Monico* from Lake Mono, Cal. That from Salt Lake differs from either of them as much as they do from *A. salina*, and with the same propriety may be regarded as a distinct species. I am disposed to view them all as varieties merely of *A. salina*.

Measurements of two specimens of the Salt Lake *Artemia* are as follows:—

| | Females. | Males. |
|--|-----------------|-----------------|
| Total length | 7 lines. | 4 lines. |
| Length of body | 4 “ | 2½ “ |
| Breadth of body with limbs | 3 “ | 1¾ “ |
| Breadth of head at eyes | 1¼ mm. | 1½ mm. |
| Breadth of thorax where widest | $\frac{4}{5}$ “ | $\frac{2}{5}$ “ |
| Length of first joint of abdomen | $\frac{4}{5}$ “ | $\frac{2}{5}$ “ |
| Breadth “ “ “ | $\frac{3}{5}$ “ | $\frac{2}{5}$ “ |
| Length of sixth “ “ | $\frac{4}{5}$ “ | $\frac{1}{2}$ “ |
| Breadth “ “ “ | $\frac{1}{5}$ “ | $\frac{1}{4}$ “ |
| Length of caudle setæ | $\frac{2}{5}$ “ | $\frac{2}{5}$ “ |
| Length of antennæ | $\frac{1}{2}$ “ | $\frac{4}{5}$ “ |
| Length of claspers of male | | 1½ “ |
| Breadth “ “ | | 1¼ “ |
| Breadth of ovarian sac | 1½ “ | |
| Diameter of eggs | $\frac{1}{6}$ | |

Remarks on Fossil Shark Teeth.—Prof. LEIDY stated that from time to time he had observed specimens of teeth from various cretaceous formations which were identical in character with those of *Lamna elegans* and *L. cuspidata* of tertiary deposits except that they were devoid of the lateral denticles. He had now in his possession well-preserved specimens of such teeth, unabraded, but exhibiting no trace of the existence of lateral denticles. There were teeth of the *L. elegans* variety found with the skeleton of *Hadrosaurus Foulkii* in New Jersey, and others from the cretaceous of Mississippi and Kansas. There were also teeth of the *L. cuspidata* variety from the cretaceous of Kansas, and one in a block of chalk from Sussex, England. The absence of the lateral denticles in all the cretaceous specimens he thought could hardly be accidental, and suspected that these teeth represented the *oxyrhina* ancestors, of the tertiary *Lamna elegans* and *L. cuspidata*, who lived during the cretaceous era.